UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 8
999 18TH STREET - SUITE 500
DENVER, CO 80202-2466

Ref: 8EPR-ER

ACTION MEMORANDUM AMENDMENT

SUBJECT: Request for a declaration of a public health emergency, for headquarters approval of a ceiling increase, and a modification of the proposed scope of response to include the removal of Zonolite Insulation from houses for the Time-Critical Removal Action at the **Libby Asbestos Site** - Libby, Lincoln County, Montana.

FROM: Jack W. McGraw
Acting Regional Administrator

TO: Michael Shapiro
Acting Assistant Administrator
Office of Solid Waste and Emergency Response

THROUGH: Larry Reed, Acting Director
Office of Emergency and Remedial Response

Site ID#: BC

Category of Removal: Time Critical, Non-NPL, EPA Fund-Lead

I. PURPOSE

The purpose of this ACTION MEMORANDUM AMENDMENT is threefold: 1) to declare that the extensive medical impact from amphibole asbestos exposure in the Libby Valley in Lincoln County, Montana constitutes a public health emergency; 2) to request and document headquarters approval of a ceiling increase for the Libby Asbestos Site (Site); and 3) to modify the scope of the Removal Action described herein to include the removal of Zonolite Insulation from homes and businesses within the Libby Valley at the Site, located in Lincoln County, Montana. The initial Removal Action was authorized by the Action Memorandum dated May 23, 2000, and addressed the threats posed by high levels of amphibole asbestos at the Screening Plant (EPA-lead) and the Export Plant (PRP-lead). An Action Memo Amendment was approved by Headquarters on August 13, 2001, that increased the Site ceiling, and added to the number of locations where Removal Actions were being undertaken.

Attachment 7
Enforcement Addendum

Privileged & Confidential

Enforcement Confidential
Attorney Work Product, Attorney-Client

The Screening Plant and Export Facility, which were the subject of the original Action Amendment signed May 23, 2000, were owned and operated by W.R. Grace ("Grace") during the period in which hazardous substances were disposed of at those locations. EPA issued Grace a unilateral administrative order for performance of the response action at the Export Plant. EPA chose to take fund lead response actions at the Screening Plant because the owners of the majority of the property would not provide Grace access and EPA deemed it inappropriate to enforce access given the circumstances.

On July 14, 2000 Grace purchased a controlling interest in Kootenai Development Company ("KDC"), the company which had purchased the mine and some of the Screening Plant property from Grace in 1994. On July 18th, Grace denied EPA access to the mine and the KDC properties at the Screening Plant. EPA filed a motion in aid of access in federal district court and was granted access by the court March 9, 2001. EPA continues to pursue a penalty case for the failure to provide access and will be commencing discovery on that case this summer. EPA and DOJ filed a complaint for cost recovery against Grace and KDC on March 29th, 2001. This complaint covers all response costs, including those incurred by ATSDR. Discovery and pretrial on this case is scheduled for this summer.

EPA will not seek recovery of response costs or work from the current property owners at the Screening Plant or the Export Facility. These entities, who purchased the properties from W.R. Grace in the mid and early-1990s, respectively, had no reason to know that the vermiculite present on the property contained asbestos. While it may have been widely known that workers at the mill were contracting asbestosis, it was not widely known that the beneficiated vermiculite, such as that at the two facilities, contained this hazardous substance. In addition, EPA is not planning on pursuing owners of property being addressed by this summer's response actions, as they are likely in the same position as described above. EPA is in the process of sending information requests to these parties, so that a complete evaluation of potential liability can be made.

On April 2, 2001, Grace petitioned for Chapter 11 bankruptcy protection in Delaware federal district court. While EPA is not on a creditors committee, it is in the process of estimating its claim. Grace is proposing an April 1, 2002 bar date for claims.

EPA is preparing for discovery in the access and cost recovery cases and remains open to a global settlement of Grace's liability. However, because Libby vermiculite went to so many facilities around the country, such a settlement will be difficult to formulate.

To date, all the Removal Actions undertaken have addresses amphibole asbestos contamination associated with vermiculite mining wastes, either found at the former W.R. Grace & Company (Grace) processing plants, or at locations around the Libby Valley where the wastes have been deposited. This Action Memorandum Amendment is fundamentally different in that it addresses the release of a hazardous substance (i.e., the Libby amphibole asbestos) coming from Zonolite insulation found in local homes and businesses. Programmatically, this is significant for two reasons: 1) unless the lead agency determines that a release constitutes a public health emergency and that no other person with authority and capability will do so in a timely manner 40 CFR 300.400(b)(2) generally limits EPA's authority to respond to releases of hazardous substances "From products that are part of the structure of, and result in exposure within, residential buildings or business or community structures;" and 2) the Zonolite insulation is a consumer product in commerce as defined in Section--------- of CERCLA. These issues will be discussed further in the body of this memorandum.

A separate Action Memorandum Amendment is being prepared to provide for a ceiling increase to cover additional removal actions, similar to those already underway or completed, dealing with the vermiculite wastes. These costs, as well as those associated with the Zonolite removals discussed herein, are reported separately in Section VI of this memorandum, and then tallied for a total site ceiling.

II. SITE CONDITIONS AND BACKGROUND

A. Site Description

1. Removal Site Evaluation

Vermiculite was discovered just outside Libby, Montana, in 1881 by gold miners. In the early 1920's initial mining operations were begun by Mr. Edward Alley on the vermiculite ore body located approximately 7 miles northeast of Libby (Figure 1). Full scale operations began later that decade under the name of the Universal Zonolite Insulation Company (Zonolite). This ore body also contained amphibole asbestos fibers of the tremolite-actinolite-richterite-winchite solid solution series (herein referred to as amphibole asbestos or "Libby amphibole," Bureau of Mines Monograph, 1928). Unlike, the commercially exploited chrysotile asbestos, the Libby amphibole material has never been used commercially on a wide scale, and for the mine's operating life it was considered a tramp contaminant. The commercially exploited vermiculite was used in a variety of products, including in insulation and construction materials, as a carrier for fertilizer and other agricultural chemicals, and as a soil conditioner.

Operations at the mine were fairly simple. The ore was strip mined using conventional equipment and then processed in an on-site dry mill to remove waste rock and overburden. Once Beneficiated, the processed ore was trucked down Rainey Creek

Road to the Screening Plant, which separated the milled ore into five size ranges for use in various products. From there, the material was shipped across the country, predominantly by rail, for either direct inclusion in products, or for expansion (also known as exfoliation) prior to use in products. Expansion was accomplished by heating the ore, usually in a dry kiln, to approximately 2000 °F, which boiled the water trapped in the crystalline matrix of the vermiculite. This expanded the material by a factor of 10 to 15 fold.

In Libby, operations handling this material occurred at four main locations: the Mine and Mill located on Rainey Creek Road on top of Zonolite Mountain; the Screening Plant and Railroad Loading Station located astride the Kootenai River at the intersection of Rainy Creek Road and Highway 37 (the Screening Plant); the Expansion/Export Plant (the Export Plant) located off Highway 37 where it crosses the Kootenai River; and at an Expansion Plant located at the end of Lincoln Road, near 5th Street (Figure 2). The Lincoln Road Expansion Plant apparently went off line sometime in the early 1950's, and has since been demolished. Investigations are underway to determine the exact location of this facility.

In 1963, the W.R. Grace Company (Grace) purchased Zonolite and continued operations in a similar fashion. A wet milling process was added to the operation in 1975, which operated in tandem with the dry mill, until the dry mill was taken off line in 1985. Expansion operations at the Export Plant ceased in Libby sometime prior to 1981, although this area was still used to bag and export milled ore until mining operations were stopped in 1990. Before the mine closed in 1990, Libby produced about 80% of the world's supply of vermiculite.

The Action Memorandum dated May 23, 2000 provides the basic description of the mine and processing facilities, and outlines the Removal Actions initiated in the Summer of 2000. In the Summer of 2001, actions begun in 2000 were continued, and several more removal actions were initiated at other locations around the Libby area. These were discussed in the first Amendment to the Action Memorandum, which was approved by Acting Assistant Administrator for OSWER on August 13, 2001. A further description of these actions and areas will not be repeated here. As site investigations continue additional properties, mostly residential, where vermiculite mining wastes containing amphibole asbestos have been deposited are being identified. These properties and associated response actions will be addressed in a separate Action Memorandum Amendment as well.

As mentioned above, this Action Memorandum Amendment discusses the proposed removal of Zonolite insulation from homes, businesses, and public buildings in the Libby area. Zonolite was the brand named used by Grace and its predecessors for an exfoliated insulation produced from Libby vermiculite ore. Exfoliated vermiculite was commonly used as a loose fill attic insulation, either blown in or placed by hand. Based on the community interviews conducted in Libby, as well as from information collected during

the ATSDR medical screening in Libby, it is believed that between 60-70% of homes within the City Limits of Libby contain Zonolite insulation. Although the percentage appears to drop off, Zonolite insulation was also used in homes throughout the Libby Valley outside the City Limits.

When analyzed by Polarized Light Microscopy (PLM-NIOSH Method 9002) bulk samples of Zonolite insulation typically show levels of amphibole asbestos at <1%, and range from non-detect to 5% (see Zonolite insulation data in Attachment 1). However, when viewed through a Scanning Electron Microscope (SEM) all of the Zonolite insulation samples collected by EPA, including those reported as non-detect by PLM, reveal some presence of the amphibole asbestos. Therefore, it is reasonable to conclude that all of the Zonolite insulation found in homes and buildings in Libby contains some level of the Libby amphibole asbestos.

What is more significant about the Zonolite insulation is its propensity to generate airborne, respirable asbestos fibers when disturbed. In the Spring of 2001 the EPA started a series of sampling investigations based on "exposure scenarios" in and around homes in Libby. This effort, referred to as the "Phase II Sampling Investigation" (see Phase II Sampling Plan in the Site Administrative Record) involved the collection of air and dust samples during routine household activities ranging from watching televison to vacuuming to renovations which directly disturbed the Zonolite insulation. Dr. Chris Weis, Regional Toxicologists for EPA Region VIII, has prepared two interim memos which cover some of the EPA's findings regarding these investigations, the first is dated July 9, 2001, and the second is dated November–, 2001 (see Attachments 2 and 3). In short, when disturbed, the Zonolite insulation will readily generate asbestos concentrations in air between 1 f/cc to 10 f/cc. This finding is entirely consistent with independent investigations done by the EPA's Office of Pollution Prevention and Toxic Substances (OPPTS) in the New England area; the MAC corporation in a home in Spokane, Washington; and by W.R. Grace & Company in the late 1970's and early 1980's (see Site Administrative Record).

Further, EPA's Phase II Investigation indicates that if the amphibole asbestos fibers are spread into the living space of a home, or accumulated in dust within a home (such as during a renovation project) that the amphibole asbestos fibers will be re-suspended in the air at concentrations approaching 1.0 f/cc during routine cleaning activities. Again, this finding is entirely consistent with work sponsored by OPPTS in 1992, and with that done by **Sebstaen** in 1977 (see Site Administrative Record).

Exposure to the amphibole asbestos in Zonolite insulation will vary greatly. At the low end of exposure would be a home in good repair, where the homeowners do not use their attic for storage or other any other activities, where the ventilation system does not disturb the airspace in the attic, and where no home renovation work is planned in the

near future. At the other end of the exposure spectrum would be a local Libby tradesman, such as a carpenter, contractor, or electrician. EPA has interviewed several such people in Libby, who intimately encounter Zonolite insulation several times a week as part of their normal course of business. It is reasonable to conclude that such tradesmen would be exposed to levels of amphibole asbestos exceeding the short-term and long-term OSHA Permissible Exposure Limits (PELs) every time they install a ceiling fan, remove a wall, or do a re-wiring in a home with Zonolite insulation. Innumerable variations of these exposure scenarios can logically be constructed, with the substantiative variables being the length, intensity, and frequency of the exposure. Although more work and follow-up investigation is underway, the data compiled to date from the Phase II Sampling investigation can be found in Attachment 4.

2. Physical Location/Site Characteristics

The Libby Asbestos Site has been defined to include the greater Libby area (a.k.a. "Libby Valley"). The Site sits in a well defined mountain valley system along the Kootenai River. The Libby valley sits at an elevation of roughly 2200 feet above mean sea level, while the surrounding mountains range from 4400 to 8000 feet above mean sea level. The area receives an average annual precipitation of 17 inches, a substantial portion coming in the form of snow during the winter months. Libby and the surrounding area are subject to significant weather inversions. Partly as a result of the topography and weather inversions, historically the Libby valley has been a non-attainment area under the Clean Air Act for concentrations of particulates.

The population of Libby and surrounding communities located within a four-mile radius is estimated at 13,800, with approximately 2600 living within the City Limits of Libby. The principal industries in the area consist of lumber production, mining, and summer tourism. The economy of Libby is somewhat depressed and the community has a high unemployment rate. Many of the homes tested by EPA are in need of repair, with obvious gaps in drywall where vermiculite insulation can enter the living space. There are no licensed asbestos abatement contractors in the Libby area.

The May 23, 2000, Action Memorandum, and the August 13, 2001 Action Memorandum Amendment, contained specific descriptions of the properties targeted for removal actions. These earlier actions mostly targeted the former vermiculite processing operations (e.g., the Screening Plant) or areas where large amounts of vermiculite mining wastes had been deposited (e.g., the Libby High School). However, as was noted in the August 13, 2001 memorandum, EPA's investigations were (and are) continuing to identify properties where smaller amounts of vermiculite wastes were used as backfill, or for other purposes on individual residential properties. Similarly, EPA's Phase II Sampling Investigation has begun to identify risks particular to individual homes. It is apparent then that the nature of the places where amphibole asbestos can still be found,

and where action is needed, has shifted away from a few large parcel where high volumes of contamination exists, to many smaller parcels where smaller amounts of contamination reside. Hence, the further physical descriptions given in this section will be somewhat generic, broadly addressing the homes and buildings found in the Libby Valley. There will, of course, be exceptions to these characterizations, but nonetheless they shall serve to typify the majority of locations where the Zonolite insulation can be found. For discussion purposes the discussion will be broken up into two parts: homes and buildings within the City Limits of Libby, and homes and businesses in the surrounding Libby Valley.

a. Homes and Businesses within the Libby City Limits: Homes within the City of Libby tend to be older (constructed prior to 1950), smaller (<1500 ft^2), and on smaller lots (<1/4 acre). There are roughly 600 homes within the City Limits, with an estimated 60-70% containing Zonolite insulation. Because of their age, and the harsh winter conditions in this part of Montana, the homes require a higher level of maintenance work than homes across the country. The homes typically remain tightly shut during the winter season.

Most of the businesses in the City of Libby are clustered in the downtown area, along California and Mineral Avenues, and along the Highway 2 corridor. The downtown businesses are most commonly laid out in "row-house style," that is adjoining one another, and in some cases sharing a common wall or roof. Most buildings in this corridor are one or two stories. There are some stand alone buildings, as well as a few out buildings either directly attached, or associated with the main part of the business. The majority of the buildings in this business district were constructed prior to 1950.

The businesses along the Highway 2 corridor are almost all stand alone properties, with a few "strip mall" like developments. Although it varies somewhat, these buildings tend to be of more recent construction than those that house the downtown businesses. Most of these buildings are of single story construction.

There are two large commercial operations within the City Limits of Libby. The Burlington-Northern Railroad (BNR) has a switch yard located straddling Highway 37 where it crosses the Kootenai River. Contamination of the ground along the tracks in the rail yard that resulted from historic vermiculite loading operations will be addressed in a separate Action Memorandum. After conducting an investigation this past Spring, BNR opted to bring in an asbestos abatement crew to remove the Zonolite insulation from its buildings associated with the rail yard this past summer. The other large commercial operation is the Stimson Lumber Mill. The Stimson mill location currently manufactures plywood and dimension lumber, but had housed some of the Zonolite processing

operations prior to 1950. The EPA and Stimson are currently investigating the contamination associated with these former operations. In addition, several of the buildings on the Mill property also contain varying amounts of Zonolite insulation. EPA is currently working with the managers at the Stimson Mill to monitor the exposure of amphibole asbestos to their workers, including those which might come from the Zonolite insulation remaining in the buildings on the property.

b. Homes and Businesses in the Surrounding Libby Valley: The surrounding Libby Valley encompasses a much larger geographical area than the City of Libby. When compared to those within the City of Libby, the homes in this area tend to be newer, bigger, and on larger lots. This pattern is analogous to the development pattern and relationship between suburbs and central cities in more metropolitan settings. Because of the more recent construction, Zonolite insulation is not encountered with the frequency that it is in Libby. Especially as one moves upstream along the Kootenai River up Highway 37 the size of the land parcels increase dramatically. There are an estimated 2000 residences within the Libby valley. Although the data set is not as complete as for that within the City of Libby, it is estimated that 20-30% of these residences contain Zonolite insulation.

The pattern for construction of commercial buildings in the surrounding Libby valley is similar to that for the residential properties: they tend to be newer, bigger, and on larger parcels of land. There are some sizeable parcels of land that are currently used for agricultural and timber production. These tend to be greater than 20 acres in size, with only a few buildings associated with them.

3. Release or threatened release into the environment of a hazardous substance, or pollutant or contaminant

The Libby amphibole asbestos found at all of the locations discussed in this Action Memorandum Amendment is a hazardous substance as defined by Section 101 of CERCLA. Even though this Action Memorandum Amendment addresses only the amphibole asbestos found in Zonolite insulation, all of the locations found within the Libby Asbestos Site that are the subject of this and previous Removal Actions share several common characteristics: 1)various vermiculite materials, contaminated with amphibole asbestos, can be found in bulk at these locations; 2) there are people playing, living or working on and/or near these locations; and 3) there is the potential for direct exposure of people to the amphibole asbestos, as well as secondary exposure of other people to fibers tracked out by those directly exposed.

With the Zonolite insulation the direct exposure can take on many forms. As discussed above the most common likely being a Libby tradesman working in direct contact with the Zonolite in an attic or wall space. For a homeowner, the exposure could

take place during a household renovation, or if the attic space is used for storage or as a living or work area. For example, in one Libby home the attic was used as a small gunsmith workshop, with bare Zonolite insulation exposed in the area. In some homes in Libby it has ben observed that the Zonolite insulation is literally falling out from gaps around light fixtures and electrical switches. As evidenced by the Phase II sampling, in home where the Libby amphibole asbestos has accumulated in dust (such as from leaking Zonolite, or being tracked in from outside sources) common household cleaning activities will re-entrain amphibole asbestos fibers into the air.

As discussed in the previous two Action Memoranda (May 23, 2000, August 13, 2001), the EPA has clear and compelling evidence that exposure to the Libby amphibole asbestos can result in direct adverse health effects. The Site Administrative Record contains many academic papers discussing the hazards associated with amphibole asbestos in general, and Libby amphibole asbestos in particular. There are a number of Grace papers, investigations, and memoranda that document the widespread occurrence of asbestos related disease among its workers, both in Libby (41% of Grace Libby workers with a ten year work history are reported as having asbestosis) and around the country (28% of the Grace workers handling Libby vermiculite around the country are reported as having asbestosis, e.g. see E.S. Wood, 1977, or E. Lovick, 1969).

In the Summer of 2000, the Agency for Toxic Substances and Disease Registry (ATSDR) undertook a massive asbestos health screening program involving over 6,000 people who may have been exposed to amphibole asbestos in or around Libby. Another 1200 people were similarly screened in the Summer of 2001. These investigations documented the widespread occurrence of lung abnormalities, not only among former Grace employees, but among their families, and the population at large in Libby (see ***Attachment 5)*** far beyond what would normally be expected. In addition to documenting the overall prevalence of lung abnormalities among various populations, the ATSDR report makes three other findings of direct pertinence to Zonolite insulation: 1) greater than 90% of the people participating in the medical screening had reported multiple exposure pathways; 2) generally, the more exposure pathways that were reported, the higher the incidence of lung abnormalities were observed (i.e., there appeared to be an additive effect to the exposures); and 3) by way of calculating odds ratios, the ATSDR Report demonstrates that behaviors that result in contact with various vermiculite materials, including contact with Zonolite insulation, greatly increased the chance for developing lung abnormalities when compared to the study population at large. From the ATSDR report it is clear that exposure to Zonolite insulation has already contributed to the development of lung abnormalities in Libby.

Also attached to this Action Memorandum Amendment are three memos from Dr. Chris Weis, Regional Toxicologist, that discusses in great detail the risks associated with exposure to Libby amphibole asbestos (see Attachments 2, 3, and 6). The earliest memo, dated May –, 2000 discusses some of the results from EPA's initial investigations in

Libby, while also providing background on the amphibole asbestos found in Libby. The second memo and gives some location specific discussion and risk evaluation for the areas at which EPA initiated Removal Actions in 2001. The third memo makes more specific use of the Phase II data set, and evaluates the risks individuals face during fairly routine activities in Libby, including those associated with working in and around Zonolite insulation.

ATSDR also published a study on the mortality from asbestosis in Libby, Montana, dated December 12, 2000 (Attachment 6). This study found, among other things, that the reported mortality from asbestosis in Libby was 60 times the national average.

Put in summary of NIOSH warning and vermiculite data

Because of the breadth and depth of the information contained in these attachments, a more detailed discussion of these risk will not be done within this Action Memorandum. For details one should reference the attachments here, and the documents in the Administrative Record.

4. NPL status

The Site is currently not on the National Priorities List (NPL). However, as the on-going removal investigation continues, and with new asbestos contaminated areas (e.g. schools' running tracks, Plummer Elementary School, residential homes, etc.) that have recently been identified, the EPA Superfund Site Assessment Team conducted a Listing Site Inspection (LSI) for the Libby Asbestos Site. Currently, a Hazard Ranking System (HRS) scoring packing is being put together, and input is being sought from the public, as well as State and local elected officials as how to best proceed with the Site in the long term. Should the Site(s) be placed on the NPL, the current removal actions will be consistent with any remedial cleanup that might be taken due to the fact that the proposed actions constitute source control and consolidation measures.

B. Other Actions to Date

1. Previous actions

Removal Actions were initiated in the Spring of 2000 to begin cleanup of the amphibole asbestos at the Screening and the Export Plants. On July 14, 2000, W.R. Grace reacquired control of the mine and the KDC properties. On July 18, 2000 Grace refused EPA access to these areas for all activities, including the use of the mine for a repository and to clean-up the KDC parcels. Subsequently, Grace allowed access for sampling investigations and oversight, but still withheld access for cleanup and disposal. On September 14, 2000, the Department of Justice (DOJ), on behalf of EPA, filed a lawsuit in the U.S. District Court in Missoula, Montana, against W.R. Grace - seeking full

access to the KDC parcels and the mine. A brief hearing was held on December 20, 2000, and two Court ordered mediation sessions were held on January 25 & 29, 2001. However, the mediation proved fruitless, and the matter was sent back to the Court in Missoula. On March 9, 2001, the U.S. District Court in Missoula made a partial ruling (the issue of appropriate penalties was set off for a later date) in favor of the EPA. This ruling gave EPA full access to use the mine for a repository and to the KDC parcels for removal activities. On April 2, 2001, W.R. Grace & Co. filed for Chapter 11 bankruptcy protection. Because the UAW addressing the Export Plant was issued prior to the bankruptcy filing, Grace continued work at the Export Plant with EPA oversight.

After a winter shutdown, removal work at the Screening Plant and Export Plant were resumed in April of 2001. In addition, sampling investigations had identified several more properties which contained vermiculite materials which contained Libby amphibole asbestos. The locations specifically identified in the August 13, 2001, Action Memorandum Amendment included the Libby High School; Libby Middle School; Plummer Elementary School; the Seifke Property; Rainy Creek Road; and the Brownlee Property. In addition, during the Summer of 2001 several more residential properties were found to have Libby amphibole asbestos contamination associated with vermiculite ores and mining wastes that had been deposited on the properties. These included the Temple Property, the Burris Property, the Johnson Property; the Sanderson Property; the Calhoun Property; and the Champion Haul Road ***CHECK FOR MORE----------***. Removal work was started on all of these properties.

All told, during the Spring/Summer of 2001 the EPA moved over 210,000 yds.^{3} of amphibole asbestos contaminated soil, and over 35,000 yds.^{3} of contaminated debris back to the former vermiculite mine. Below is a brief update on each individual property addressed:

a. The Export Plant: Grace effected the demolition and disposal of 4 of the 5 buildings on this property. The only building remaining on the property is the one that houses the Planer owned and operated by Millwork West. Since the beginning of the Removal Action the Agency has worked with Millwork West so as to keep the Planer, which was operated on a batch basis 4 to 10 days a month, in business. It appears now that Grace is near completing negotiations that will permanently relocate the Planer, and allow for the demolition of this final building. By October 2001, Grace had completed the excavation of asbestos contaminated soil from the property , with the exception of those to be removed that are underneath the Planer Building. This work should be completed in the Spring/Summer 2002, with final property restoration to. In total, Grace has moved approximately 16,000 yds ^{3} of amphibole asbestos contaminated soil, and 1500 yds.^{3} of debris back to the vermiculite mine.

b. The Screening Plant: The Screening Plant is divided into five parcels: two owned by KDC, one by the Wise family, and the largest portion, two parcels owned and operated by the Raintree Nursery. The Raintree Nursery property, and the Wise property have been completely excavated and partially backfilled, awaiting final grading and

restoration in the Summer of 2002. In addition, all of the structures on the Raintree parcel were demolished.. There remains some subsurface amphibole asbestos (concentrations up to 2% by PLM) at depths at least four feet below ground surface under some of the excavated area on the Raintree Nursery parcel. This is due to what appears to be natural occurring layers of asbestos material underlying portions of the Site. An explanation of this occurrence can be found the Site file (see Peronard, March 8, 2001). A fabric membrane was placed at the four-foot excavation depth prior to backfilling on the north side of the Site to mark the limits of excavation.

The two KDC parcels are commonly referred to as the KDC-Bluffs, and the KDC - Flyway. On the KDC Bluffs there were three discrete disposal areas containing vermiculite wastes that were targeted for removal. These three areas have been removed and backfilled. However, sampling done in the Summer of 2001 indicates there remains a 2-4 acre area on the KDC-Bluffs parcel which has amphibole asbestos contamination across the surface, albeit at levels less than 1% asbestos by PLM. This area is not currently in use, but it is zoned and planned for residential development. Because the Agency's investigations in Libby and other Superfund Sites have indicated that, depending on the activity in the area, levels of asbestos at less than 1% by PLM can generate significant levels of airborne asbestos, this area remains a concern. A request has been made to the Regional Toxicologist for an evaluation and recommendation for this area.

The excavation of contaminated soil from the KDC-Flyway parcel was begun in August 2001, and stopped for the season in October 2001. It is estimated that 30-40% of the amphibole asbestos contaminated soil targeted for removal has been excavated from this parcel. Work will resume on this action in the Spring of 2002.

c. The Rainy Creek Road: In order to prepare Rainy Creek Road for use as a haul road and to help eliminate the problem of elevated airborne asbestos fibers of the intersection of Highway 37 and Rainy Creek Road encountered last October/November 2000, the EPA paved the lower half-mile of the road. A decon station has been built at the transition from unpaved to paved portion of the road. Active dust suppression is in place for unpaved section of the road as well.

On May 1, 2001, the USFS and Lincoln County issued a joint temporary road closure for the Rainy Creek Road, restricting access to the area for general public. In the short term, these preventive measures have eliminated the potential exposure of the public to asbestos fibers that may result from hauling activities. EPA has been working with the USFS on developing a site specific Memorandum of Understanding to coordinate each Agency's long term responsibility for the Site.

d. Plummer Elementary School: All removal and restoration work targeted for Plummer Elementary was completed in the Summer of 2001. No further action is

planned.

e. Libby High School and Libby Middle School: Ore tailings containing amphibole asbestos were initially found in the subsurface of the asphalt-capped running tracks at both schools. Also, "tremolite rocks" were found on the ground surface in the vicinity of the tracks of the high school, as well as contamination underneath the bleachers around the track, and in equipment and locker rooms in the area. At the High School all of the tailings and vermiculite wastes, as well as the contamination underneath the bleachers and in the buildings around the track were removed in the Summer/Fall of 2001. Most of the restoration for the High School has been completed. The re-surfacing of the Track itself is scheduled for the Spring of 2002.

At the Middle School all asbestos containing wastes have been removed, and restoration has been completed.

f. The Brownlee Property: The pile of unexfoliated vermiculite, and all associated amphibole asbestos contamination at the Brownlee Property has been removed, and restoration has been completed.

g. The Seifke Property: All the equipment contaminated with amphibole asbestos was either cleaned or removed to the mine for disposal. Two of the outbuildings on the property were demolished, and the interior of the Seifke residence was cleaned of Libby amphibole asbestos.. Soil contaminated with amphibole asbestos was excavated, and all generated soil and debris was removed to the Zonolite Mine for disposal. All restoration activities have been completed.

h. The Burris and Calhoun Properties: The Burris and Calhoun Properties large waste rock bearing pure veins of the Libby amphibole asbestos had been used as landscaping rocks around the gardens on the property. The garden soils contained amphibole asbestos at levels greater that 1%, and at the Calhoun property significant levels of amphibole asbestos fibers were found in the dust in the home. All of the source material and contaminated soils were removed, and the interior of the Calhoun residence was cleaned. All restoration work has been completed at both properties.

i. The Johnson, Sanderson, Temple, and ----------Properties: At all of these properties various vermiculite wastes containing amphibole asbestos concentrations up to 10% by PLM were discovered in yard or garden soils. In addition, individual "tremolite rocks" were also found. At each of these areas, any large "tremolite rocks" were removed, the major source areas either covered or demarcated, and nature and extent sampling is underway. These properties are targeted for cleanup in the Spring of 2002.

j. The Champion Haul Road: Along a portion of this road, where it leads from

Highway 37 into a residential area, vermiculite ore and /or tailings have been discovered with amphibole asbestos concentrations greater than 1% at the surface. These areas were covered with a durable geotextile fabric as a temporary cover, while nature and extent sampling is underway. This area is targeted for removal in the Spring of 2002.

2. Current actions

EPA is continuing its on-site investigations in Libby. These include the traditional nature and extent type sampling (see Phase I Sampling Plan, January 4, 2000), and also some site specific exposure scenario sampling (see Phase II Sampling Plan, March 2001). In addition, because of problems encountered with much of the standard light based microscopy (see Action Memorandum, May 23, 2000) the EPA has also undertaken an evaluation of some alternative analytical techniques for use in Libby (see Performance Evaluation Study, Parts A, B, and C). EPA has also endeavored to update some earlier work done jointly by OSWER and EPA Region 9, in updating the Superfund Risk Assessment methodology for asbestos.

Most all Removal work begun or continued in Summer of 2001 is either complete or shut down for the winter, to resume next Spring as needed. Details for the completion of this work, and other similar projects are discussed in a separate Action Memorandum Amendment. Other than a few pilot studies, and some simulations done as part of the Phase II Sampling effort, no Zonolite Insulation removals have been undertaken.

C. State and Local Authorities' Roles

Continued involvement by the State of Montana, ATSDR, PHS, USGS, USFS, Lincoln County Health Board, Libby School Board, and City of Libby officials in this Removal Action is expected to be largely in the area of communication with the Libby community, medical screening program, background data, support, and routine sampling. The State of Montana and local authorities were kept informed of the activities by EPA through a number of means.

ATSDR and PHS have taken the lead in the on-going medical investigations in Libby. A second phase of medical screening was begun in August 2001. ATSDR and PHS are also working with local physicians, Lincoln County, and the State Medical Officer in developing a full epidemiological case series for Libby Asbestos victims. This will focus on identifying the nature, presentation, and progression of the disease endpoints from exposure to Libby amphibole asbestos.

USGS is providing EPA with much technical assistance in documenting the mineralogical and morphologic nature of the Libby amphibole asbestos. They are also conducting a remote sensing, infrared spectroscopy analysis of the Libby basin to help identify the presence of surface

deposits (man-made and naturally occurring) of the amphibole asbestos. USGS has also been working with EPA on many of the analytical method issues, helping to augment and develop the Agency's analytical techniques.

The USFS is providing on the ground assistance with such issues as the road closure for Rainy Creek, traffic control, and fire management. In addition, the USFS is working with EPA to establish a long term plan for properties they own or control that have been impacted by the amphibole asbestos.

Lincoln County has actively engaged on helping to provide assistance on the medical screening and evaluations, as well as with patient care. The Lincoln County Health Officer has and continues to play a central role in the dissemination of medical information to all of the parties involved. Tthe EPA and Lincoln County have also made arrangements for them to take over the asbestos ambient air sampling in and around Libby, incorporating this into their already established Clean Air Act pm2.5 program.

Although they have participated in many of the community activities, and been involved with some of the planning efforts, the State of Montana does not have the needed resources to conduct the needed site investigations or clean-ups independently. They have deferred the lead on all site activities to the EPA. EPA continues to provide information to the State, and continues to seek their input on the implementation of Removal Actions.

III. THREATS TO PUBLIC HEALTH OR WELFARE OR THE ENVIRONMENT, AND STATUTORY AND REGULATORY AUTHORITIES

A. Threats to Public Health or Welfare

Previous sections of this and the preceding Action Memoranda have discussed the presence of amphibole asbestos at a number of locations in and around the City of Libby. These discussions also document that at each location there exists, or there is the potential for a complete human exposure pathway. Thus, at each location people either have, or may, come into direct contact with the amphibole asbestos, causing the inhalation of unsafe levels of asbestos. There is also ample evidence that this asbestos may be tracked out on the clothing or the person of those directly exposed, and carried home, resulting in a secondary exposure.

The fundamental nature of this exposure does not change when dealing specifically with Zonolite insulation. By its very nature Zonolite insulation is inherently friable. Whether in work done during the Phase II sampling, by OPPTS, private corporations, or by W.R. Grace & Company, it has been clearly shown that contact with Zonolite insulation will create severe exposures to high levels of airborne Libby amphibole asbestos (see Administrative Record).

In Libby, these exposures are of a somewhat unique and paramount significance. From a multiplicity of sources, the ATSDR medical screening, the ATSDR mortality study, interviews

with the local medical community, the medical investigations of W.R. Grace & Co., and previous investigations by NIOSH, it can be shown that the Libby community has a widespread medical problem related to exposure to Libby amphibole asbestos. In effect, a large portion of the community has been shown to have a highly compromised capability to fend off further asbestos exposure. This point is clearly underscored by the ATSDR finding of the extent of the multiple exposure pathways to which people in the area have been exposed, and the proportional relationship to the number of exposure pathways and the increased findings of lung abnormalities.

While the workplace exposure to miners, and the widespread ambient exposures that once existed in Libby have been eliminated, there still exists in Libby multiple pathways for people to be exposed to amphibole asbestos. As the Agency's investigations and cleanups demonstrate, people have recently and may still encounter vermiculite mining wastes and ores in discrete areas around the community. The Screening Plant and Export Plant were open retail businesses as recently as 18 months ago. People attended football games and track meets, or practiced on the High School track when asbestos was present at the surface as recent as six months ago. Children wrestled on vermiculite tailings at the former ice skating rink at Plummer Elementary School 7 months ago. People are likely still encountering vermiculite wastes in their yards and gardens today. Because of the high percentage of homes with Zonolite insulation in Libby, local electricians and carpenters contact the insulation on a near daily basis in Libby.

All of these exposure will continue to have an additive effect on Libby residents until they are eliminated. Further these exposure will be aggravated by the terrain meteorologic conditions that yield the weather inversions that worsen Libby's particulate problem. Libby's historic designation as a non-attainment area for particulates only exacerbates the effect of the asbestos exposure. Libby also has a high rate of smokers. The synergistic relationship between cigarette smoking and asbestos exposure has been clearly established.

The very age and nature of the residences and businesses which contain the Zonolite insulation in Libby contribute to the likelihood of contact with the amphibole asbestos in Zonolite. The Zonolite tends to be in the older homes, which require more maintenance and renovation. In Libby, which has the second lowest per capita income in Montana, the economic factors are such that many people tend to allow conditions needing repair to exist longer, and also tend to do the repairs themselves.

Most previous risk assessments dealing with Zonolite insulation, or other Libby vermiculite products have downplayed the frequency of the contact with the material. In its work, W.R. Grace contends that a homeowner who installed Zonolite insulation would have a once in a lifetime exposure to elevated levels of Libby amphibole for a period of less than four hours, resulting in a minuscule lifetime risk. This approach to evaluating the risks from Zonolite insulation ignores many factors. It does not account for the tradesman who, especially in Libby, encounters the Zonolite on a much more frequent basis. It ignores the person who uses the attic space for storage or other purposes. It assumes the home requires no renovation, nor other

repairs (such as to fix a leaky roof, or evict squirrels nesting in the attic) that require one to work in the attic. It also ignores the potential for asbestos to be spread to the rest of the home during installation or renovation, and the subsequent re-exposure that would occur during normal household activities. This type of assessment is belied by the results of the ATSDR medical screening which shows a significantly higher odds ratio for those reporting contact with vermiculite insulation (or other vermiculite materials) than those with simple ambient exposures.

There is also no doubt about the insidious toxicological nature of the amphibole asbestos found in Libby vermiculite. Adverse effects from these types of exposure have been documented among Grace workers in Libby, and around the country. There has also been a clear pathology associated with the secondary exposures. The medical screening conducted by ATSDR during the Summer of 2001 (***see Attachment 7)*** clearly documents the occurrence of significant lung abnormalities among family members of former Grace employees. Likewise, the ATSDR screening also found significant rates of lung abnormalities among people with "recreational" contact with various vermiculite materials that contain the amphibole asbestos. Overall, the preliminary results of medical screening program to date show that 19 to 37% of tested participants had scarring in their chest wall. Unfortunately, 73% of the participants who showed lung abnormalities were not associated with W.R. Grace mining or processing activities. Excluding the former miners and their immediate family, the overall abnormality rate was 12 to 24%.

Similarly, as discussed in the May 23, 2000, Action Memorandum, there is evidence that Grace workers suffered high rates of asbestos related disease at their processing plants across the country, not just in Libby. Although investigations are in the early stages, it is not unreasonable to hypothesize, and early evidence suggests, that the family members of those workers, and those living around these plants, have also been adversely impacted. There already exists a documented case of an individual who as a child played in a stockpile of Libby vermiculite in Minneapolis, Minnesota who died from an asbestos related disease at the age of 43, clearly linked to the Libby amphibole asbestos.

In December 2000, ATSDR published the results from a standardized mortality study (see ***Attachment 8***) based on a review of a subset of death certificates from the Libby area from 1979 to 1998. Among the studies findings were the following:

-Mortality from asbestosis was approximately 40 to 60 times higher than expected.
-Mortality from mesothelioma, a rare type of cancer associated with asbestos exposure also appeared elevated.

As was done prior to the Removal Actions begun last year, the Site On-Scene Coordinator requested that the Regional Toxicologist review that data collected from the Libby Asbestos Site. His most recent findings are summarized in memorandum form in ***Attachment 6.*** Generally, Dr. Weis concludes that the amphibole asbestos found in various constructs of Libby vermiculite

(e.g., raw ore, tailings, milled unexfoliated vermiculite) all yield significant amounts of respirable amphibole asbestos fiber. He further concludes that exposure to these fibers have been shown to have pronounced medical consequences, and present an unacceptable risk to those who may contact the amphibole asbestos in the Libby vermiculite.

The above discussed results and conclusions are very consistent with what has been found internationally as well. At a conference held in Oakland, California on May 24-25, 2001, Dr. Marcel Goldberg, Head of the Health and Work Department of the French National Institute for Health Surveillance, presented a series of epidemiological studies from a number of locations around the world where there are environmental exposures to various amphibole asbestos minerals. In general, Dr. Goldberg presented documentation showing that direct contact with these materials (with some striking similarities to the conditions found in Libby) resulted in the marked increased presentation lung diseases such as fibrosis, mesothelioma, and lung cancer. The entirety of the materials presented at the Oakland Conference, as well as a transcript of the proceedings have been included in the Site Administrative Record.

Another presenter at the Oakland conference was Dr. McDonald of McGill University. As discussed in the May 23, 2000, Action Memorandum Dr. McDonald had conducted a study in the mid 1980s (see McDonald, 1987 in the Administrative Record) on a cohort of Grace employees, finding elevated incidence of lung abnormalities, lung cancer, and mesothelioma. Prior to the Oakland conference Dr. McDonald did a brief update on the cohort of workers he studied in the 1980s. Once again his research showed that the Grace workers suffered a remarkable incidence of these lung diseases. When asked about the toxicity of the amphibole asbestos found in the Libby vermiculite Dr. McDonald termed it "quite astounding."

The above discussed information, along with the host of other information found in the Site Administrative Record has led the EPA to make the following general conclusions: 1)Whenever materials associated with Libby vermiculite can be found in bulk, there will most likely be associated with it high concentrations of amphibole asbestos; 2) The amphibole asbestos found in the Libby vermiculite is highly toxic; 3) The amphibole asbestos associated with the Libby vermiculite readily produces respirable fibers when disturbed; and 4) Any time when there exists a condition such that there will be people in or around the amphibole asbestos there is a high probability for exposure, and this probability presents an unacceptable risk to public health.

With this information for background, the following is a discussion on the criteria used to determine the need for a Removal Action found in the National Contingency Plan at 40 CFR 300.415(b)(2) that relate to the conditions now found in Libby, Montana. The evaluation of these factors clearly demonstrates that the conditions at the Site may present an imminent and substantial threat to human health and the environment and meet the criteria for initiating a Removal Action under Section 300.415(b)(2) of the NCP.

1. ***300.415(b)(2)(i) Actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances:*** High levels of amphibole asbestos can be made airborne through contact with Zonolite insulation. Whether happening to home and business owners, or to local tradesmen, these exposures are occurring on a continuous basis. Given the number of cases of secondary asbestos exposures that resulted in disease among the family members of former mine workers, it is likely that these "take home" exposures associated with Zonolite insulation are happening as well.

2. ***300.415(b)(2)(v) Weather conditions that may cause hazardous substances or pollutants or contaminants to migrate or be released***: The semi-arid climate of the area is characterized by harsh winters and hot summers. The Libby area is also subject to heavy winter inversions, trapping particulate matter and airborne fibers in the Libby Valley, thus aggravating exposures. This also leads to more maintenance among the older homes in Libby, which tend to have the Zonolite insulation.

3. ***300.415(b)(2)(vii) The (lack of) availability of other appropriate federal or state mechanisms to respond to the release***: No other Local, State, or Federal agency is in the position or has the resources to independently implement an effective response action to address the on-going threats presented at the site. EPA will coordinate its actions with State and Local authorities.

4. ***300.415(b)(2)(viii) Other situations or factors that may pose threats to public health or welfare of the United States or the environment***: In Libby, it has been well documented that secondary and environmental exposures of the public to a hazardous substance has resulted in a broad and unprecedented impact on public health. While the full medical impact of the amphibole asbestos exposure in Libby will likely never be known, it is nonetheless unprecedented. The asbestos related deaths in Libby over the last two decades number in the hundreds. There are currently hundreds more who suffer from asbestos related illnesses. Based on the information coming from the ATSDR medical screening more than a thousand people will have asbestos related scarring in their lungs, or the pleural lining of their lungs. While it is hoped that most of these people will not become symptomatic of asbestos related disease, too many undoubtedly will. This adverse biological impact, the observed scarring in the chest cavity, is an early step in the progression of many asbestos related pathologies. People with this type of scarring within their chest cavity are at a much higher risk for developing lung cancer, mesothelioma, and/or fibrosis. The sheer magnitude of the medical impact in Libby dictates the need for an expedient and thorough response. Unfortunately, because of the latencies of asbestos related diseases there is no easy way to directly correlate exposure to amphibole asbestos today to the direct development of an asbestos related disease. The only way to determine

this for certain is to observe an individual for 10 to 40 years after exposure to see if they become sick. However, waiting for this type of certainty is unconscionable. CERCLA was designed and enacted to prevent illness and death resulting from exposure to hazardous substances, not wait for its occurrence to prove a threat. Prudence would require that in the face of the history of amphibole asbestos exposure in Libby, and the breadth of its impact, that direct and immediate steps be taken to eliminate to the extent possible the exposure of people to this material.

Given the breadth and scope of the medical impact in Libby, and the factors discussed above, the release of amphibole asbestos in Libby, including those releases associated with Zonolite insulation, constitute a public health emergency.

B. Threats to the Environment

The primary threat identified is exposure to human populations, with only secondary concerns for exposure to domestic or feral animals. The Action Memorandum dated May 23, 2000, contains some additional discussion about potential threats to the environment, but they will not be repeated here.

IV. ENDANGERMENT DETERMINATION

The actual or threatened releases of airborne asbestos from this Site, if not addressed by implementing the response action selected in this Action Memorandum, and those begun earlier (See Action Memorandum dated May 23, 2000), may present an imminent and substantial endangerment to public health, welfare, or the environment. The conditions in Libby associated with the release of amphibole asbestos from all sources, including Zonolite insulation, present a public health emergency.

V. EXEMPTION FROM STATUTORY LIMITS

The Action Memorandum dated May 23, 2000, provided the documentation required by the NCP at 40 CFR 300.415(b)(5)(i) to receive an exemption from the normal $2 million and one year limit on Removal Response Actions. Conditions at the Libby Asbestos Site still warrant this exemption. Hence this Action Memorandum Amendment requests a ceiling increase under the already granted exemption beyond the $6 million response decision making authority delegated to the Region. This ceiling increase is necessary to complete the Removal Actions authorized by the Action Memorandum dated May 23, 2000, the Action Memorandum Amendment dated August 13, 2001, and the additional Removal Actions as described in this amendment.

A. Emergency Exemption:

As was documented in the original Action Memorandum for the Site, conditions at the Libby Asbestos Site meet the criteria set forth in CERCLA §104(c)(1)(A) [40 CFR

300.415 (b)(5)(i) of the NCP]. That is, as discussed above, there exists in Libby immediate risk to public health or welfare or the environment; continued response actions are immediately required to prevent, limit, or mitigate an emergency; and such assistance will not otherwise be provided on a timely basis. At all the locations discussed in this Action Memorandum if Removal Actions are not initiated or continued then people will be exposed to unsafe levels of amphibole asbestos. Removal Action expenditures at the Libby Asbestos Site will be tracked cumulatively against a (single) total Site ceiling. Any subsequent locations within the Site where actions are deemed necessary as of the result of the on-going investigations in Libby will be documented appropriately and added to the Administrative Record. These actions will likewise be covered by the already established emergency, and tracked in a cumulative fashion.

VI. PROPOSED ACTIONS AND ESTIMATED COSTS

A. Proposed Actions

1.0 Proposed action description

EPA proposes to continue and/or initiate actions which will mitigate the threat to the public health and welfare or the environment posed by the amphibole asbestos present at a number of locations where vermiculite ores and mining wastes have come to be located. However, the specifics of this work will be discussed in a separate Action Memorandum Amendment. This Action Memorandum Agreement only address the removal and or containment of Zonolite insulation from homes, businesses, and public buildings in the Libby Valley.

Although there will be variation among individual homes and buildings, the basic approach to each property will be as follows:

a. Establishment of asbestos controls including physical barriers, negative air, decon/entry/exit corridor.
b. Bulk removal of Zonolite insulation from attic and walls (if necessary).
c. Removal/disposal of carpet (if contaminated).
d. HEPA vacuuming the interior of the home.
e. Restoration as needed.

In order to allow for year round operations the EPA will evaluate the feasibility and cost effectiveness of constructing an asbestos disposal cell at the Lincoln County Landfill in lieu of disposal a the mine site.

In accordance with Section 300.415(l), EPA will pursue appropriate arrangements for post-removal site controls at the cleanup locations, as needed, and at the disposal site to ensure the long-term integrity of the removal.

2. Contribution to remedial performance

The Site is not currently on the National Priorities List (NPL). However, as the on-going removal investigation continues and with new asbestos-contaminated areas being identified, the EPA Superfund Site Assessment Team has conducted a Listing Site Inspection (LSI) for the Libby Asbestos Site. Currently, a Hazard Ranking System (HRS) scoring packing is being put together, and input is being sought from the public as well as State and locals elected officials as how to best proceed with the Site in the long term. Should the Site(s) be placed on the NPL, the current removal actions will be consistent with any remedial cleanup that might be taken due to the fact that the proposed actions constitute source control and consolidation measures. Also, efforts are already being made to ensure that any removal investigation work is consistent with that required by a remedial investigatin.

3. Description of alternative technologies

No alternative technologies were found to be apptopriate given the nature of the amphibole asbestos contamination, the scope of the project, and its time-critical nature. If in the course of these, or any subsequent removal actions at the Site, any alternative remediation technologies are identified that will enhance response actions, they will be considered as appropriate.

4. EE/CA

This is a Time-Critical Removal Action; thus, an EE/CA is not required.

5. Applicable or relevant and appropriate requirements

See the Federal and State ARARs identified and/or discussed in the Action Memorandum (May 23, 2000).

6. Project Schedule

As with any project of this scope and complexity, the planned schedule is highly subject to change and readjustment. If any new locations are discovered that in the judgement of the Site OSC warrant more immediate action, there may be wholesale shifts in timing. Given the rather short construction season in this part of Montana, this could mean the delay of some actions until the next construction season, in Spring 2003. project schedule for the Libby Asbestos Site. ***(Input schedule from Volpe)***

7. Estimated Costs

Extramural Costs- Zonolite Removal				
	Residences	Item	Unit Rate	
		Labor	$ 8,000	
		Equipment	$ 3,000	
		Restoration	$ 4,000	
		Sampling	$ 1,000	
		Overhead	$ 4,000	
		Total	$20,000	
	800 @ $20,000			$16,000,000
	Businesses			
		Labor	$18,000	
		Equipment	$ 6,000	
		Restoration	$ 7,000	
		Sampling	$ 2,000	
		Overhead	$ 4,000	
		Total	$37,000	
	100@ $37,000			$3,700,000
	Public Buildings			
		Labor	$30,000	

		Equipment	$12,000	
		Restoration	$14,000	
		Sampling	$ 4,000	
		Overhead	$ 2,000	
		Total	$62,000	
	15@ $62,000			$ 930,000
Subtotal				**$10,630,000**
20% Contingency				$ 4,126,000
Total				**$20,756,000**

Total Extramural -Zonolite Removal	$ 20,756,000
Total Intramural - Zonolite Removal	$ 100,000
Total Removal Ceiling (FY00-01)	$ 20,976,000
Total Other Ceiling Increase (FY-02)	$ 10,000,000
Total Removal Ceiling (FY00-03)	**$ 51,832,000**

There are other EPA Region VIII expenditures at the Libby Asbestos Site that are tracked separately from the above mentioned Removal Ceiling. These are the costs associated with the Removal Site Investigation (a.k.a.- Phase I Investigation), costs incurred by the Region to support the ATSDR Medical Screening, the Performance Evaluation Study, the funds given to USGS for technical support, the Exposure Scenario Investigation (a.k.a.-Phase II Investigation), funds provided to develop a site specific Risk Assessment, and funds used to help update the Superfund Program's Generic Asbestos Risk Assessment. For clarification purposes only, below is an estimate of the project budget for each of these items:

Task	**Regional Project Budget (FY00/01)**	**Regional Project Budget (FY02)**
Phase I Sampling Investigation	$ 4,500,000	$2,000,000
Medical Screening Support	$ 500,000	-0-
PE Study	$ 700,000	$ 50,000
USGS	$ 1,000,000	$ 50,000
Phase II Sampling Investigation	$ 1,000,000	$ 100,000
Site Specific Risk Assessment	$ 300,000	$ 200,000
Generic Risk Assessment	$ 500,000	$ 20,000
TOTAL	**$ 8,500,000**	**$2,420,000**

VII. EXPECTED CHANGE IN THE SITUATION SHOULD ACTION BE DELAYED OR NOT TAKEN

Delayed action will continue to allow the public to be exposed to unsafe amounts of amphibole asbestos. This will increase the risk to public health, and continue to burden an already heavily impacted community.

VIII. OUTSTANDING POLICY ISSUES

The Removal Actions described as part of this Action Memorandum raise two issues of fundamental importance:1) the declaration of a public health emergency in Libby; and 2) the removal of a consumer product in commerce.

IX. ENFORCEMENT

Attachment 7 is a confidential summary of the Enforcement Actions.

X. RECOMMENDATION

This decision document represents the selected Removal Action for the removal of Zonolite insulation from homes, businesses, and public buildings in the Libby Valley, which is within the Libby Asbestos Site, located in Libby, Lincoln County, Montana. The proposed Removal Actions have been developed in accordance with CERCLA as amended, and not inconsistent with the NCP. This decision is based on the Administrative Record for the Site.

Conditions at the Site meet the NCP §300.415(b) criteria for a Removal Action and NCP §300.415(b)(5)(i) criteria for exemption from statutory limits. I recommend your approval of the proposed Removal Action. The costs include $20,756,000 in FY-02 funds, with a total project ceiling of $51,832,000.

Approve: _____ Date:_____
Michael Shapiro
Acting Assistant Administrator
Office of Solid Waste and Emergency Response

Disapprove: _____ Date:_____
Michael Shapiro
Acting Assistant Administrator
Office of Solid Waste and Emergency Response

Figures:

Figure 1	Regional Map
Figure 2	Site Map

Attachments:

Attachment 1
Attachment 2
Attachment 3
Attachment 4
Attachment 5
Attachment 6
Attachment 7

SUPPLEMENTAL DOCUMENTS

Support/reference documents which may be helpful to the reader and/or have been cited in the report may be found in the Administrative Record File at the Superfund Records Center for Region VIII EPA, 999 18th Street, Denver, Colorado 80202.